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10/697,370	10/30/2003	George Liang	2003PI3685US	7887

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Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, NJ 08830

EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/697,370

Applicant(s)

LIANG, GEORGE

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-12 and 16-20 is/are rejected.
- 7) ☒ Claim(s) 2-4 and 13-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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Applicant's Amendment dated January 18, 2005 has been carefully considered but is deemed non-persuasive. Claims 1-20 are pending. The objection to the drawings as including reference numeral "66" which was not mentioned in the specification is withdrawn in light of Applicant's argument that the specification at page 6, line 13 shows such a reference numeral. Applicant is thanked for pointing this out. The specification has been amended to correct the informalities set forth in the first Office action. The claims have been amended to adopt the examiner's suggested claim language, and the claims have been amended to overcome the rejections under 35 USC 112, second paragraph set forth in the first Office action. Correction of the above matters is noted with appreciation.

With regard to Tiemann 2004/0022630, Applicant has argued that claim 1 recites a turbine vane having a first end adapted to be coupled to a shroud assembly and at least one inlet orifice in the first inflow section of the serpentine cooling path at the first end of the hollow airfoil, and that the cooling system of Tiemann does not include an inlet at the end of the airfoil adapted to be coupled to a shroud assembly, and that the inflow section of the serpentine cooling path is sealed at the first end in close proximity to reference numeral 43 in figure 1. These arguments are not persuasive, because figure 1 of Tiemann shows a turbine vane 1 having a first end 5 adapted to be coupled to a shroud assembly, and at least one inlet orifice near 37 in the first inflow section of the serpentine cooling path at the first end of the generally elongated hollow airfoil. As set forth in the first Office action, the recitation in claim 1, line 3 of "adapted to be coupled to a shroud assembly" is a recitation of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention

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and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). The vane of Tiemann is capable of coupling to a shroud assembly via hooks 11. With regard to Applicant's argument that that the inflow section of the serpentine cooling path is sealed at the first end in close proximity to reference numeral 43, this argument is not persuasive because although the vane first inflow section has insert 37 provided therein, inlet orifice near 37 in the first inflow section is still considered to be "at least one inlet orifice in the first inflow section of the serpentine cooling path at the first end of the hollow airfoil", and claim 1 does not preclude such an arrangement.

With regard to Beabout 5,511,309, Applicant has argued that claim 1 recites that the at least one metering rib includes at least one metering orifice, and that Beabout does not disclose a metering rib defining a barrier between the first inflow channel of the serpentine channel and the leading edge cooling path, with the metering rib including at least one metering orifice, but that Beabout discloses a rib separating a serpentine channel from the leading edge channel, with no metering orifices in the rib. These arguments are not persuasive, because Beabout (see figure 3) discloses at least one metering rib 98 defining a barrier between a portion of the first inflow section 60 and the at least one leading edge cooling path 100, wherein the at least one metering rib includes at least one metering orifice 96, and the at least one metering orifice in the metering rib is sized to regulate flow of cooling fluids through the at least one leading edge cooling path

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and into a manifold assembly. Column 4, lines 65-66 thereof refer to "cast crossover holes 96" that are formed in the leading edge passage wall 98.

With regard to Redman 3,799,696, Applicant has argued that claim 1 recites at least one metering rib defining a barrier between a portion of the first inflow section and the at least one leading edge cooling path, with the at least one metering rib including at least one metering orifice, and that Redman does not disclose a metering rib defining a barrier between a serpentine channel and a leading edge cooling path, stating that element 39 of Redman is described as an air entry tube. Applicant has further argued that element 38 of Redman appears to form a barrier separating a serpentine cooling channel from another cooling channel and is defined in Redman as being a diaphragm dividing the leading and trailing sections, and that Redman does not disclose metering holes in the diaphragm 38. These arguments are not persuasive, because Redman (figures 3-4) discloses at least one metering rib 39 defining a barrier between a portion of the first inflow section 55 and the at least one leading edge cooling path 37, with the at least one metering rib including at least one metering orifice 43, 44, 46. Although Redman discloses element 39 as an air entry tube, element 39 is still broadly considered to be a metering rib, because it is rib-shaped, extends like a rib, and functions as a rib. Note that during patent examination, claims must be given their broadest reasonable interpretation consistent with the specification. *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541,

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550- 51 (CCPA 1969). Although Applicant is correct that element 38 of Redman appears to form a barrier separating a serpentine cooling channel from another cooling channel and is defined in Redman as being a diaphragm dividing the leading and trailing sections, element 39 of Redman also is considered to be metering rib, because the claims do not preclude the arrangement disclosed in Redman with metering rib 39 having a diaphragm 38 barrier separating a serpentine cooling channel from another cooling channel.

Applicant's arguments (see page 20, last two lines, page 21, line 1, and page 21, lines 6-8) filed January 18, 2005, with respect to the rejection of claims 1, 6-7, and 9-10 under 35 USC 103(a) as being unpatentable over Quinones 3,528,751 in view of Redman 3,799,696 have been fully considered and are persuasive. Applicant's argument that closing the cooling air inlet in the first turn of Quinones and replacing it with a cooling air inlet at the opposite end of the inflow channel of the serpentine channel is impermissible hindsight, is persuasive. Additionally, Applicant's argument that amended claim 1 recites that the first turn of the cooling channel is formed from a continuous wall is persuasive; the first turn of the cooling channel below 60 in Quinones is formed as a discontinuous wall with an inlet opening. The rejection of claims 1, 6-7, and 9-10 under 35 USC 103(a) as being unpatentable over Quinones 3,528,751 in view of Redman 3,799,696, and the rejection of claim 10 as being unpatentable over Quinones 3,528,751 in view of Redman 3,799,696 and either (Clevenger 5,741,117 or Kercher 3,533,711) are withdrawn.

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Applicant's arguments concerning the rejection of claims 5, 12, 16-18, and 20 under 35 U.S.C. 103(a) as being unpatentable over Tiemann 2004/0022630 in view of Ohtomo 5,120,192, and the rejection of claim 19 under 35 U.S.C. 103(a) as being unpatentable over Tiemann 2004/0022630 and Ohtomo 5,120,192 as applied to claim 18 above, and further in view of Redman 3,930,478, are the same as those presented with regard to Tiemann 2004/0022630, above. These arguments are not persuasive for the reasons set forth above.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Amended claim 1, line 7 recites that the first turn is formed from a continuous wall. Although this is shown in figure 2, the specification does not include this language.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6-9, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Tiemann 2004/0022630. Note the turbine vane 1 comprising a generally elongated hollow airfoil 7 having a leading edge 8, a trailing edge 10, an inherent pressure side and an inherent suction side due to the airfoil shape, a first end 5 adapted to be coupled to a shroud assembly, and a second end near 13 opposite the first end adapted to be coupled to a manifold assembly, a serpentine cooling path formed from a first inflow section near 61 and a first outflow section near 21, the first outflow section in communication with the first inflow section and extending from a first turn (to the right of 35) formed from a continuous wall (wall 31 and the vane interior bottom wall defined by element 9) generally toward the first end of the generally elongated hollow airfoil; at least one inlet orifice near 37 in the first inflow section of the serpentine cooling path at the first end of the generally elongated hollow airfoil; at least one exhaust orifice near 10 in the trailing edge of the generally elongated hollow airfoil and coupled to the serpentine cooling path for exhausting cooling fluids from the serpentine cooling path; at least one leading edge cooling path (near 51) positioned proximate to the leading edge; at least one metering rib 39 defining a barrier between a portion of the first inflow section and the at least one leading edge cooling path, wherein the at least one metering rib includes at least one metering orifice 43, and the at least one metering orifice in the metering rib is sized to regulate flow of cooling fluids through the at least one leading edge cooling path and into a manifold assembly. The first inflow section 61 of the serpentine cooling path is a convergent cooling path that has a first cross-sectional area at the first end 6 of the generally elongated hollow airfoil that is greater than a second cross-sectional area at the second end 13 of the generally elongated hollow airfoil, and the serpentine cooling path further comprises a second inflow section near 27

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positioned between the first outflow section and the trailing edge and in communication with the first outflow section. The serpentine cooling path further comprises a plurality of trip strips 29, and the at least one metering orifice 43 comprises a plurality of metering orifices in the metering rib. The metering rib is adapted to control flow of a cooling fluid through the turbine vane so that a sufficient amount of cooling fluid is passed through the serpentine cooling path to cool portions of the trailing edge. The recitation in claim 1, line 3 of "adapted to be coupled to a shroud assembly", and the recitation in claim 1, lines 4-5 of "adapted to be coupled to a manifold assembly" are recitations of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). The vane of Tiemann is capable of coupling to both a shroud assembly and a manifold assembly, via respective hooks 11 and 13. The recitation in claim 1, lines 20-22 of the at least one metering orifice in the metering rib being "sized to regulate flow of cooling fluids through the at least one leading edge cooling path and into a manifold assembly" is a recitation of intended use as set forth above. The metering orifices 43 allow flow of cooling fluids into the leading edge cooling path 51, and because the metering orifices are of such as size as to allow such flow to pass through, they inherently will allow flow into the manifold assembly.

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Claims 1 and 7-9 rejected under 35 U.S.C. 102(b) as being anticipated by Beabout 5,511,309. Note the turbine vane 32 comprising a generally elongated hollow airfoil 36 having a leading edge 42, a trailing edge 44, an unnumbered pressure side and an unnumbered suction side, a first end near 38 adapted to be coupled to a shroud assembly, and a second end near 40 opposite the first end adapted to be coupled to a manifold assembly, a serpentine cooling path formed from a first inflow section near 60 and a first outflow section near 61, the first outflow section in communication with the first inflow section and extending from a first turn near 68 formed from a continuous wall (either wall 68 or wall 42) generally toward the first end of the generally elongated hollow airfoil; at least one inlet orifice near 54 in the first inflow section of the serpentine cooling path at the first end of the generally elongated hollow airfoil; at least one exhaust orifice near 74 in the trailing edge of the generally elongated hollow airfoil and coupled to the serpentine cooling path for exhausting cooling fluids from the serpentine cooling path; at least one leading edge cooling path near 100 positioned proximate to the leading edge; at least one metering rib 98 defining a barrier between a portion of the first inflow section and the at least one leading edge cooling path, wherein the at least one metering rib includes at least one metering orifice 96, and the at least one metering orifice in the metering rib is sized to regulate flow of cooling fluids through the at least one leading edge cooling path and into a manifold assembly. The serpentine cooling path further comprises a second inflow section near 62 positioned between the first outflow section and the trailing edge and in communication with the first outflow section. The serpentine cooling path further comprises a plurality of trip strips 72, and the at least one metering orifice 96 comprises a plurality of metering orifices in the metering rib. The metering rib is adapted to control flow of a cooling fluid through the turbine vane so

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that a sufficient amount of cooling fluid is passed through the serpentine cooling path to cool portions of the trailing edge. The recitation in claim 1, line 3 of "adapted to be coupled to a shroud assembly", and the recitation in claim 1, lines 4-5 of "adapted to be coupled to a manifold assembly" are recitations of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). The vane of Beabout is capable of coupling to both a shroud assembly and a manifold assembly, via unnumbered hooks near 38 and via platform 40, respectively. The recitation in claim 1, lines 20-22 of the at least one metering orifice in the metering rib being "sized to regulate flow of cooling fluids through the at least one leading edge cooling path and into a manifold assembly" is a recitation of intended use as set forth above. The metering orifices 96 allow flow of cooling fluids into the leading edge cooling path 100, and because the metering orifices are of such size as to allow such flow to pass through, they inherently will allow flow into the manifold assembly.

Claims 1, 6-7, and 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Redman 3,799,696 (figures 4-5). Note the turbine vane comprising a generally elongated hollow airfoil 37 having an unnumbered leading edge, an unnumbered trailing edge, an unnumbered pressure side and an unnumbered suction side, a first end 36 adapted to be coupled to a shroud

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assembly, and a second end near 35 opposite the first end adapted to be coupled to a manifold assembly, a serpentine cooling path formed from a first inflow section near 55 and a first outflow section near 56, the first outflow section in communication with the first inflow section and extending from a first turn (to the right of 39) formed from an unnumbered continuous vane interior wall generally toward the first end of the generally elongated hollow airfoil; at least one inlet orifice near 55 in the first inflow section of the serpentine cooling path at the first end of the generally elongated hollow airfoil; at least one exhaust orifice 58 in the trailing edge of the generally elongated hollow airfoil and coupled to the serpentine cooling path for exhausting cooling fluids from the serpentine cooling path; at least one leading edge cooling path (near 37) positioned proximate to the leading edge; at least one metering rib 39 defining a barrier between a portion of the first inflow section and the at least one leading edge cooling path, wherein the at least one metering rib includes at least one metering orifice 43, 44, 46, and the at least one metering orifice in the metering rib is sized to regulate flow of cooling fluids through the at least one leading edge cooling path and into a manifold assembly. The first inflow section 55 of the serpentine cooling path is a convergent cooling path that has a first cross-sectional area at the first end 36 of the generally elongated hollow airfoil that is greater than a second cross-sectional area at the second end 35 of the generally elongated hollow airfoil, and the serpentine cooling path further comprises a second inflow section near 57 positioned between the first outflow section and the trailing edge and in communication with the first outflow section. The at least one metering orifice 43, 44, 45 comprises a plurality of metering orifices in the metering rib. The metering orifices have different cross-sectional areas. The metering rib is adapted to control flow of a cooling fluid through the turbine vane so that a sufficient amount of cooling fluid is

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passed through the serpentine cooling path to cool portions of the trailing edge. The recitation in claim 1, line 3 of "adapted to be coupled to a shroud assembly", and the recitation in claim 1, lines 4-5 of "adapted to be coupled to a manifold assembly" are recitations of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). The vane of Redman is capable of coupling to both a shroud assembly and a manifold assembly, via respective platforms 36, 35. The recitation in claim 1, lines 20-22 of the at least one metering orifice in the metering rib being "sized to regulate flow of cooling fluids through the at least one leading edge cooling path and into a manifold assembly" is a recitation of intended use as set forth above. The metering orifices 43, 44, 46 allow flow of cooling fluids into the leading edge cooling path, and because the metering orifices are of such as size as to allow such flow to pass through, they inherently will allow flow into the manifold assembly.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 12, 16-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tiemann 2004/0022630 in view of Ohtomo 5,120,192. Tiemann discloses a vane substantially as claimed as set forth above, including a leading edge cooling path 51, but does not disclose that the leading edge cooling path is a divergent cooling path such that a first cross-sectional area of the divergent cooling path at a first end of the leading edge cooling path proximate to the first end 5 of the generally elongated hollow airfoil is smaller than a second cross-sectional area of the at least one leading edge cooling path proximate to the second end 13 of the generally elongated hollow airfoil.

Ohtomo (figures 11-12) shows a cooled turbine vane having an insert 6 which forms a rib having metering orifices 8 and forms a leading edge cooling path 12 that is a divergent cooling path such that a first cross-sectional area of the divergent cooling path at a first end of the leading edge cooling path proximate to the first end 2 of the generally elongated hollow airfoil is smaller than a second cross-sectional area of the at least one leading edge cooling path proximate to the second end 13 of the generally elongated hollow airfoil, for the purpose of compensating for a decrease in pressure of a cooling medium sprayed from the metering orifices.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the vane of Tiemann such that the leading edge cooling path is a divergent cooling path such that a first cross-sectional area of the divergent cooling path at a first end of the leading edge cooling path proximate to the first end of the generally elongated hollow

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airfoil is smaller than a second cross-sectional area of the at least one leading edge cooling path proximate to the second end of the generally elongated hollow airfoil, as taught by Ohtomo, for the purpose of compensating for a decrease in pressure of a cooling medium sprayed from the metering orifices.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tiemann 2004/0022630 and Ohtomo 5,120,192 as applied to claim 18 above, and further in view of Redman 3,930,478. The modified vane of Tiemann shows all of the claimed subject matter except for at least a portion of the plural metering orifices 51 being of different cross sectional areas.

Redman '478 (figures 3-4 and column 5, lines 61-68) shows a cooled turbine vane having inserts 21, 40 which have metering orifices 30, 31, 53, 54, 55, 56, which may be of differing sizes, for the purpose of adjusting the cooling pressure and cooling effect.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified turbine vane of Tiemann such that the plural metering orifices 51 are of different cross sectional areas, as taught by Redman '478, for the purpose of adjusting the cooling pressure and cooling effect.

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Allowable Subject Matter

Claims 2-4 and 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
April 15, 2005


Christopher Verdier
Primary Examiner
Art Unit 3745